

FE127

Diagram No. 5530-5

NOAA FORM 76-35A

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SURVEY

DESCRIPTIVE REPORT (HYDROGRAPHIC)

Type of Survey ... Field Examination
Field No. Special
Office No. FE-127

LOCALITY

State California
General Locality ... Carquinez Strait
Locality Vicinity of Southern Pacific
Bridge

1954

CHIEF OF PARTY
H.C. Applequist

LIBRARY & ARCHIVES

DATE October 27, 1954

NOTE: A new system for registering Field Examinations (FE's) was established in 1980. All FE's are now consecutively numbered as shown hereon. The date shown in the new format is the actual date of survey. This material was previously registered as;

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FE No.6 1954

FE127

FE No. 6
1954

FE-127

Diag. Cht.No.5530-5

Form 504

U. S. COAST AND GEODETIC SURVEY

DEPARTMENT OF COMMERCE

DESCRIPTIVE REPORT

Type of Survey HYDROGRAPHIC

Field No. SPECIAL Office No. F.E.No.6, (1954)

LOCALITY

State CALIFORNIA

General locality CARQUINEZ STRAIT

Locality VICINITY OF SOUTHERN PACIFIC BRIDGE

194 54

CHIEF OF PARTY

H. C. Applequist

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DATE

OCT 27 1954

FE No. 6
1954

DEPARTMENT OF COMMERCE

U. S. COAST AND GEODETIC SURVEY

HYDROGRAPHIC TITLE SHEET

The Hydrographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.

REGISTER No. _____

Field No. FIELD INVESTIGATION

State California

General locality Carquinez Strait

Locality Vicinity of Southern Pacific Bridge

Scale 1 : 10,000 Date of survey 31 August - 10 Sept. 1954

Instructions dated 26 August 1954

Vessel U. S. C. & G. S. S. BOWIE

Chief of party H. C. Applequist

Surveyed by A. L. Powell

Soundings taken by fathometer, graphic recorder, hand lead, wire _____

Fathograms scaled by F. W. I. & D. G. R.

Fathograms checked by A. L. P. & G. E. C.

Protracted by A. L. P. & D. G. R.

Soundings penciled by A. L. P. & D. G. R.

Soundings in fathoms feet at MLW MLLW

REMARKS: _____

A ABEAM, ARE,

B BEN, BELL, BIG,

C CLO

D DER, DOME

E ERO

F FEN

G GET

H

I

J JOE,

K

L

M MOC,

N

O

P

Q

R

S SOS, SEM

T TER

U

V

W WAG,

SEP 10 1954

SPECIAL HYDROGRAPHIC INVESTIGATION
CARQUINEZ STRAIT, VICINITY OF SOUTHERN PACIFIC
RAILROAD BRIDGE

This field investigation was accomplished under instructions 22/MEK, S-2-B0, dated 26 August 1954.

Hydrography was started on 31 August 1954 and completed 3 September 1954.

Launch No. 4 was used for the survey. Fathometer 808J No. S-111 was used on "a" day and Fathometer 808 No. 144SP was used for the rest of the survey.

Soundings were reduced using data from half hour staff readings from the tide staff at Benicia Arsenal dock with out time or height corrections. 4.6 ft. was used as MLLW on staff.

USC&GS Chart 5574 was used as the boat sheet and the smooth sheet. This chart with the signals plotted on it was furnished by the Washington Office. The soundings were inked for the purpose of legibility. (Enclosed in Desc. Report)

Listed below are signals used with their origin.

ARE	T-7136
BAN	do
CAS	do
CLO	Clocktower Flagstaff, 1909
DER	T-7136
DOM	Martinez Courthouse, 1922
FEN	T-7136
FOR	do
GET	do
LAT	do
MOC	Bulls Head Pt. Mococo Fertilizer Co. Stack, 1922
SEM	T-7136
SOS	do
TER	Martinez, Food Cannery Water Tank, 1949
VAN	Benicia Arsenal Incinerator, 1949
WAG	Benicia Arsenal Flagpole, 1949
BIG	Martinez Shell Oil Company, pier
BEN	Northeasterly light, 1949
JOE	Hydrographic
	Martinez, abandoned smelter
	Concrete stack, 1949
BELL	Hydrographic

Hydrography was controlled by sextant angles between shore objects.

The survey is complete and adequate for charting.

The entire area of this survey indicates considerable change from Chart 5574. It is in general agreement with survey F.E. No. 10, 1953 but comparisons indicate that the shoaling on the east side of the bridge has moved some in a southwesterly direction.

See
Review

Velocity corrections were based on bar check obtained on "b" day.

Velocity corrections used:

-0.2 ft. to 25.0 feet
0.0 ft. to 70.0 feet

Respectfully submitted:

Allen L. Powell
Allen L. Powell
Lt. Commander, USC&GS

APPROVED:

H.C. Applequist
H.C. Applequist
Commander, USC&GS
Commanding Officer
USC&GS BOWIE

Subsequent to this report closely spaced sounding lines were run over the *31 ft. sounding in Latitude $38^{\circ} 02.06'$, Longitude $122^{\circ} 07.66'$ and the *29 ft. sounding in Latitude $38^{\circ} 02.16'$, Longitude $122^{\circ} 07.52'$ but no indication of either depth was noted.

This work is plotted on an overlay which is attached to the smooth sheet. and is enclosed in the Desc. Report.

* Prior depths on Chart/let 5574 (N.M.5, Jan.30, 1954); now superseded by present depths

"STATISTICS"

SPECIAL HYDROGRAPHIC INVESTIGATION, CARQUINEZ STRAIT,
VICINITY OF SOUTHERN PACIFIC RAILROAD BRIDGE

Day	Vo. No.	Date	No. Pos.	No. Statute Miles
a	1	8-31-54	11	0.94
b	1	9-1-54	169	16.2
c	1	9-3-54	13	1.1
d	1	9-10-54	62	3.45
			<hr/>	<hr/>
		TOTAL	255	21.69

20 22 22 7
83 11 9
DEPARTMENT OF COMMERCE

COAST & GEODETIC
SURVEY

U. S. COAST AND GEODETIC SURVEY
WESTERN DISTRICT HEADQUARTERS
121 ~~XXX~~ CUSTOMHOUSE
SAN FRANCISCO 26, CALIFORNIA

REFER TO FILE
NO. (220)

1954 SEP 14 AM 9 22

10 September 1954

To: The Director
U. S. Coast and Geodetic Survey
Washington 25, D. C.

Subject: BOWIE Survey in Suisun Bay

It is understood that the resurvey near the Southern Pacific Railway Bridge at Suisun Bay by the Ship BOWIE is complete and is being forwarded to the Office. Apparently, the reported 31-foot sounding north of the east end of the Shell Oil Wharf is disproved. ✓

The area covered by this resurvey is important to the Maritime Administration in moving mariner-type ships in and out of the Reserve Fleet and to the Bay Pilots in moving tankers with 35-feet draft to the pier between the Shell Oil Wharf and the railway bridge.

It is requested that a Notice to Mariners be prepared by the Office for issue at an early date. A temporary sketch, showing the new soundings east of the bridge, has been furnished the Maritime Administration for their use pending the issue of the Notice to Mariners.

W M Gibson

W. M. Gibson
Commander, USC&GS
Supervisor, Western District

y

(Signed) Robert W. Knox

AIR MAIL

22/MEK
3-2-50

AIR MAIL

26 August 1954

To: Commanding Officer
USCGC Ship HOWE
P. O. Box 328
Oakland 4, California

Via: Supervisor, Western District

Subject: SPECIAL HYDROGRAPHIC INVESTIGATION, CARQUINEZ STRAIT,
VICINITY OF SOUTHERN PACIFIC RAILROAD BRIDGE

1. At an early date after receipt of the necessary field data, a hydrographic investigation shall be made in the vicinity of the railroad bridge at Martinez, California. Reports have been received which indicate that charted depths have been decreased due to shoaling.
2. The area where hydrography is required is shown on a copy of chart 5574, which is furnished.
3. Sufficient hydrography shall be accomplished in the area to show the present depths. The spacing of sounding lines shall not exceed 100 meters and shall be reduced where necessary to develop the bottom configuration.
4. Chart 5574 shall be used as a boat sheet and smooth sheet for the survey. A copy of chart 5574 with the signals used on the prior survey in December 1953 is furnished.
5. A tide staff shall be established at Benecia (arsenal dock) and connected to three bench marks. Half-hourly staff readings shall be recorded during the time hydrography is in progress. Bench mark data for Benecia are furnished.
6. All work shall be in accordance with standard practices and the applicable operating manuals.
7. The records for this special investigation shall be processed and sent to the Washington Office at an early date after the field work is completed.
8. If at any time it appears advisable that the instructions contained in this letter be modified, suitable recommendations shall be submitted to this office.
9. You will please acknowledge the receipt of this letter.

cc. Chart Division ✓
Tides and Currents Div.

(Signed) Robert W. Knox

Acting Director.

83 HPC
AIR MAIL

22/MEK
S-2-BO

1 October 1954

AIR MAIL

To: Commanding Officer
USCGS Ship BOWIE
P. O. Box 328
Oakland 4, California

Via: Supervisor, Western District

Subject: SPECIAL HYDROGRAPHIC SURVEY, SUISUN BAY, CALIFORNIA,
VICINITY RYER ISLAND

1. Purpose. The Maritime Administration desires information on the present depths in Suisun Cutoff and in the continuation of this natural channel to the northwest and west to a junction with the deeper water which lies along the shoreline northeast of Benicia.
2. Plan of Operations. A conference concerning the requirements of the Maritime Administration shall be held with the Supervisor, Western District, and the local representatives of the Maritime Administration. The approximate limits of the area to be surveyed are shown on a copy of chart 5534 which is furnished, but these limits may be changed as necessary to meet the requirements of the Maritime Administration.
3. An examination of chart 5534 indicates that the depths in the part of the natural channel which lies in Grizzly Bay are the critical depths as regards the use of this route for the transit of ships with a draft of about 18 feet. This area should be surveyed first. If after examining the survey of this area the Maritime Administration decides that the route is not suitable for their needs, the surveys in the remainder of the area shall be omitted.
4. Information furnished this office indicates that a dredge will be available for work on this project on certain specified days. The exact dates should be obtained from the Maritime Administration's representative, and the field work should be scheduled, if practicable, so that surveys in areas where it is anticipated that dredging will be required will be finished prior to the date the dredge is available.
5. The status of field work on Project CS-256, and on the outside coast, should be considered at the time the conference is held with the Maritime Administration's representative. The field work in these areas should be left in the best possible status and it is desirable that the start of the survey in Suisun Bay be delayed several days, if necessary, if a small amount of additional field work in the present survey areas will leave the surveys in a better condition as regards completion, or continuation by another party.

6. Control. Copies of available control and of planimetric maps compiled in 1941 are furnished.

7. Shoreline. The shoreline for the boat sheets shall be taken from the 1941 planimetric maps. This shoreline shall be corrected in places where discrepancies are discovered during the progress of the survey, but it is not intended that an extensive resurvey be made.

8. Hydrography. The hydrographic survey shall be basic and shall be made at 1:10,000 scale. The line spacing shall be 100 meters for the general coverage, and 50 meters for the navigable part of the channel. Copies of prior hydrographic surveys are furnished.

9. Tides. Portable tide gages shall be maintained at the Suisun Echo Board and Mallard Ferry wharf as the work progresses. Due to the long distance of the survey area from a tide gage in continuous operation it is desirable that two project gages be in operation while hydrographic surveys are in progress, or if only one gage is in operation, that it be inspected daily for satisfactory operation. Bench-mark data for the two places mentioned above are furnished.

10. The obstruction charted in latitude $38^{\circ} 05' 43''$, longitude $122^{\circ} 04' 02''$, is an amphibian plane that sank in September 1950. This obstruction shall be investigated, if practicable, in order that it may be correctly charted, or deleted from the charts.

11. The records for the survey in Suisun Bay shall be sent to the Washington Office. Authority is granted to furnish interested parties with advance copies of the survey.

12. General Instructions to Hydrographic Parties dated 25 February 1954 shall be considered a part of the instructions contained in this letter insofar as they apply to this project.

13. If it is considered desirable that the instructions in this letter be modified, suitable recommendations shall be submitted to this office.

14. The receipt of this letter shall be acknowledged.

cc. Supr., Western Dist.
Tides & Currents Div.
Chart Division

(Signed) R.F.A. Studds

Director

TIDE NOTE FOR HYDROGRAPHIC SHEET

~~Division of Hydrography and Topography~~

28 September 1954

Division of Charts: R. H. Carstens

Plane of reference approved in
1 volume of sounding records for

~~HYDROGRAPHIC SHEET~~

F E No. 6 1954

Locality Carquinez Strait, California

Chief of Party: H. C. Applequist in 1954

Plane of reference is mean lower low water, reading
4.6 ft. on tide staff at Benicia
15.6 ft. below B. M. 9 (1948)

Height of mean high water above plane of reference is 5.4 feet.

Condition of records satisfactory except as noted below:

E. C. McKay

Chief, Division of Tides and Currents.

GEOGRAPHIC NAMES

Survey No. F.E.No.6,(1954)

Name on Survey	A On Chart No.	B On previous survey No.	C On U. S. quadrangle Maps	D From local information	E On local Maps	F P. O. Guide or Map	G Rand McNally Atlas	H U. S. Light List	K
									1
									2
									3
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Hydrographic Surveys (Chart Division)

HYDROGRAPHIC SURVEY NO. F.E.No.6(1954)

Records accompanying survey:

Boat sheets 1-~~Ch. 5574~~ sounding vols. ...1.; wire drag vols.;
 bomb vols.; graphic recorder rolls 1-~~Env.~~;
 special reports, etc. 1 Descriptive Report;.....

The following statistics will be submitted with the cartographer's report on the sheet:

Number of positions on sheet
Number of positions checked
Number of positions revised
Number of soundings revised (refers to depth only)
Number of soundings erroneously spaced
Number of signals erroneously plotted or transferred
Topographic details	Time
Junctions	Time
Verification of soundings from graphic record	Time

Verification by.....*J.A. Dinsmore*.....Total time *4*..... Date

Reviewed by.....*J.A. Dinsmore*..... Time *8*..... Date *9-29-54*.....

VERIFIER'S REPORT OF HYDROGRAPHIC SURVEY NO. H- F.E.No.6,(1954)

The verifier should deal with the present hydrographic survey only, as the reviewer considers its relation to previous surveys and published charts. He should be thoroughly familiar with Chapters 3, 7 and 9 of the Hydrographic Manual.

1. The descriptive report was consulted and appropriate notes were made in soft pencil regarding action taken.
2. Soundings originating with the survey and mentioned in the descriptive report have been verified, including latitude and longitude.
3. All reference to survey sheets mentioned in the descriptive report include the registry number and year.
4. Geographic names of hydrographic features if on sheet are in slanting lettering and of topographic features in vertical lettering.
5. All items affecting the plotting of the survey which are entered in the remarks columns of the sounding records were noted and check marked. In all cases appropriate action was taken.
6. All positions verified instrumentally were check marked in the sounding records.
7. All critical soundings are clear and legible and are a little larger than the adjacent soundings.
8. The metal protractor has been checked within the last three months.
9. The protracting and plotting of all bad crossings were verified.
10. All detached positions locating critical soundings, rocks or buoys were verified.
11. The boat sheet was compared with the smooth sheet.

12. The spacing of soundings as recorded in the records was closely followed.
13. The bottom characteristics were shown on outstanding shoals.
14. The reduction and plotting of doubtful soundings were checked.
15. The transfer of contemporary topographic information was carefully examined.
16. All junctions were transferred and overlapping curves made identical.
17. The notation "JOINS H- (19--)" was added in ink for all contemporary adjoining or overlapping sheets now registered. Those not verified are shown in pencil.
18. The depth curves have been inspected before inking.
19. All triangulation stations and transfer of topographic and hydrographic signals were checked.
20. Heights of rocks were checked against range of tide.
21. Rocks transferred from topographic surveys have a dotted curve where shown thereon. Rocks located accurately by hydrographer are encircled by dotted red curve.
22. Unnecessary pencil notes have been removed.
23. Objects on which signals are located and which fall outside of the low water line have been described on the sheet.
24. The low water line and delineation of shoal areas have been properly shown.
25. Degree and minutes values and symbols have been checked.
26. Questionable soundings have been checked on the fathograms.

27. Source of shoreline and signals (when not given in report).
28. All notes on sheet are in accordance with figure 171 in the Hydrographic Manual.
29. All aids located, with those on contemporary topographic sheets, have been shown on survey.
30. Depth curves were satisfactory except as follows:
31. Sounding line crossings were satisfactory except as follows:
32. Junctions with contemporary surveys were satisfactory except as follows:
33. Condition of sounding records was satisfactory except as follows:
34. The protracting was satisfactory except as follows:
35. The field plotting of soundings was satisfactory except as follows:
36. Notes to reviewer:

Verified by

Date

Review of Field Examination No. 6, 1954

This field examination covers an area of both shoal and deep water extending northeastward and southwestward of Carquinez Strait railroad bridge. The survey was made to determine what bottom changes have occurred in the area and disprove charted shoal soundings in the channel.

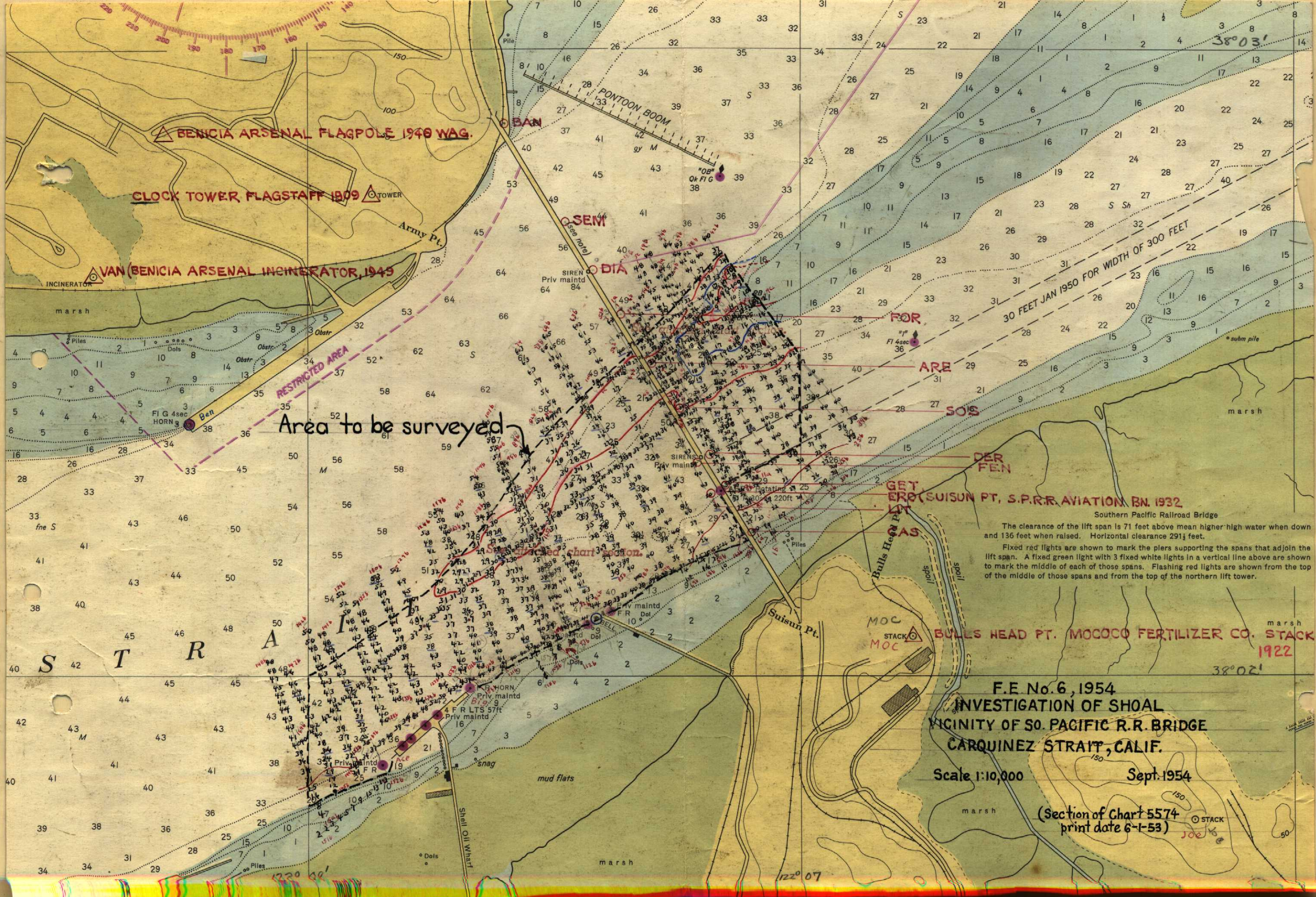
The last survey of this area appears on F. E. No. 10, of December 1953, which superseded all prior surveys. A comparison of the 1953 depths with the present depths indicates that appreciable bottom changes have taken place. Some shoaling has occurred northeast of the bridge where the present 12- and 18-ft. depth curves now extend about 100 meters southwestward from their prior limits. Southwest of the bridge, the area delineated by the 20-ft curve has narrowed appreciably since 1953. Prior depths of 29 ft. in lat. $38^{\circ}02.17'$, long. $122^{\circ}07.53'$, and 30 ft. in lat. $38^{\circ}02.09'$, long. $122^{\circ}07.62'$, are now superseded by depths of 38 ft. Also prior depths of 30-31 ft. in lat. $38^{\circ}02.20'$, long. $122^{\circ}07.32'$, have since deepened to 39-40 ft. The present examination is adequate to entirely supersede the prior depths within the common area.

A correction chartlet to accompany Chart 5574 covers the area of the present examination. Information from the present examination has been fully and accurately applied to the chartlet which will soon be published as a Notice to Mariners. This revised chartlet will supersede the prior chartlet (N.M. 5, Jan. 30, 1954.)

The Descriptive Report adequately covers all other matters pertaining to this examination.

T. A. Dinsmore
29 Sept. 1954

Inspected by - R. H. Carstens



BENICIA ARSENAL FLAGPOLE 1949 WAG.

CLOCK TOWER FLAGSTAFF 1909 TOWER

VAN (BENICIA ARSENAL INCINERATOR, 1945)

RESTRICTED AREA

Area to be surveyed

SEM

DIA

FOR

ARE

SOS

DER

FEN

GET

ER

LIT

GAS

Bulls Head Pt.

STACK

MOC

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(SUISUN PT. S.P.R.R. AVIATION BN. 1932

Southern Pacific Railroad Bridge

The clearance of the lift span is 71 feet above mean higher high water when down and 136 feet when raised. Horizontal clearance 291 1/2 feet.

Fixed red lights are shown to mark the piers supporting the spans that adjoin the lift span. A fixed green light with 3 fixed white lights in a vertical line above are shown to mark the middle of each of those spans. Flashing red lights are shown from the top of the middle of those spans and from the top of the northern lift tower.

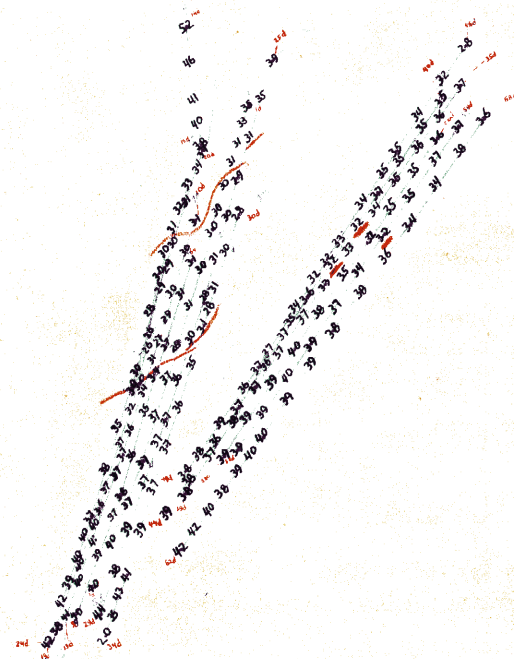
BULLS HEAD PT. MOCOCO FERTILIZER CO. STACK 1922

F.E. No. 6, 1954
INVESTIGATION OF SHOAL
VICINITY OF SO. PACIFIC R.R. BRIDGE
CARQUINEZ STRAIT, CALIF.

Scale 1:10,000 Sept. 1954

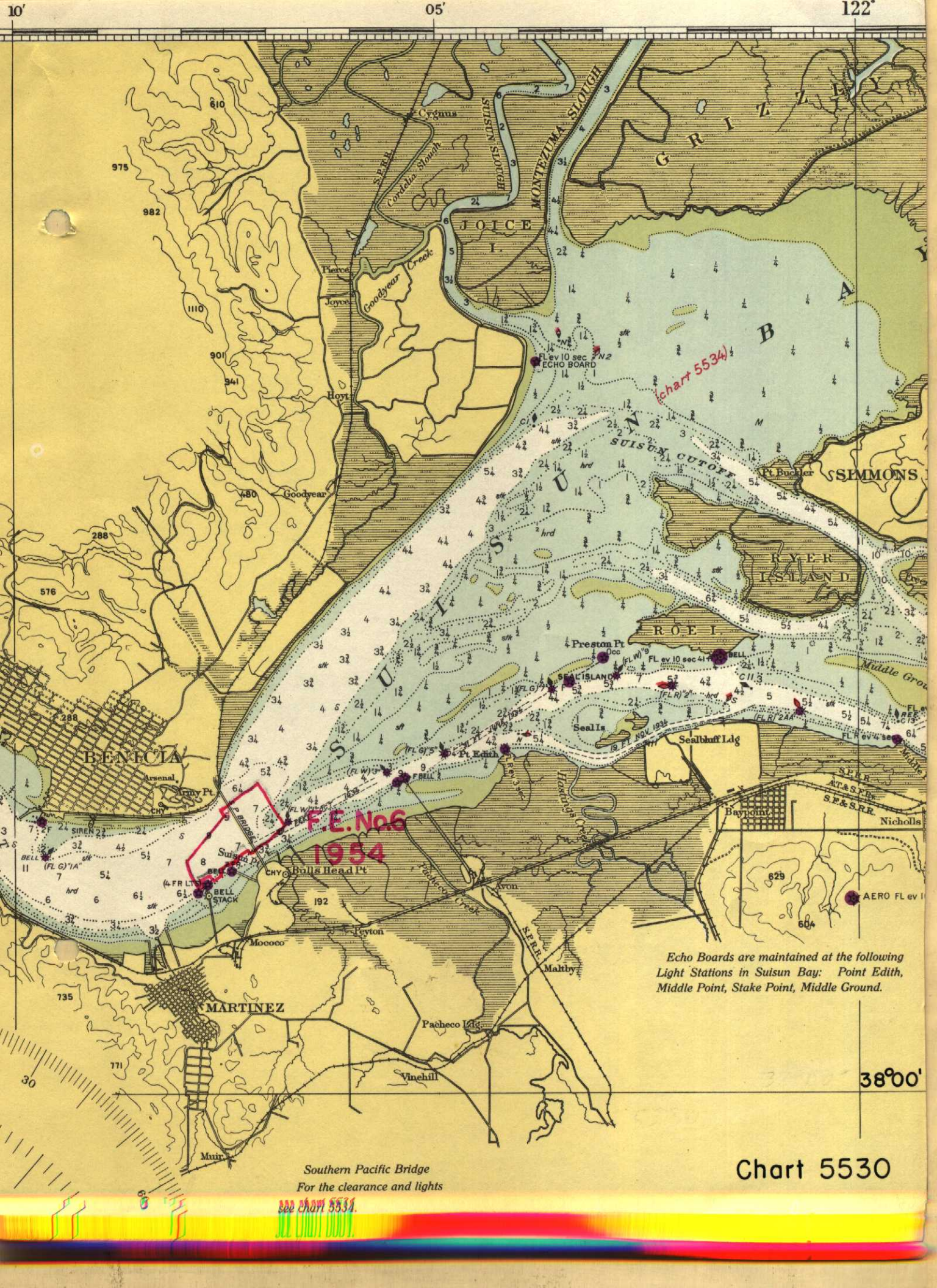
(Section of Chart 5574
print date 6-1-53)

38°-03'



38°-02'
122°-07'

Additional Development
OVERLAY TO ACCOMPANY
FIELD INVESTIGATION
CARQUINEZ STRAIT
USCGC 655 BOWIE
SEPT. 1954



Echo Boards are maintained at the following
Light Stations in Suisun Bay: Point Edith,
Middle Point, Stake Point, Middle Ground.

Southern Pacific Bridge
For the clearance and lights

Chart 5530

2025 Chart 5534

NAUTICAL CHARTS BRANCH

SURVEY NO. F.E. No. 6, (1954)

Record of Application to Charts

[illegible]

M-2168-1

A basic hydrographic or topographic survey supersedes all information of like nature on the uncorrected chart. Give reasons for deviations, if any, from recommendations made under "Comparison with Charts" in the Review.